

CHAPTER 51

RED MAPLE TYPE

TYPE DESCRIPTION

A. Stand Composition

Red Maple (*Acer rubrum*) comprising more than 50 percent of the basal area in pole timber and sawtimber stands or more than 50 percent of the stems in seedling and sapling stands.

B. Associated Species

Pure stands of Red Maple are uncommon. The most commonly found species associated with Red Maple are Paper Birch (*Betula papyrifera*), Northern Red Oak (*Quercus rubra*), Northern Pin Oak (*Quercus palustris*), Quaking Aspen (*Populus tremuloides*), Large Tooth Aspen (*Populus grandidentata*), Black Oak (*Quercus velutina*), Black Cherry (*Prunus serotina*), Bitternut Hickory (*Carya cordiformis*), Shagbark Hickory (*Carya ovata*), White Pine (*Pinus strobus*), Eastern Hemlock (*Tsuga canadensis*), and White Spruce (*Picea glauca*). Red Maple can be found as a minor component within most Wisconsin cover types due to its adaptive root system and tolerance of varied moisture regimes.

C. Soil Preferences

Red Maple occurs on a wide range of soils from sands to loams. It occupies both glaciated and nonglaciated soils and a wide range of topographies.

D. Range of Habitat Types

Red Maple is commonly found on QAE, AQV, PAm, PMV, AVViB, AVde, AQVib, AA, TMC, and ATM habitat types. The habitat types with promise for maintenance of Red Maple as a type occur on the dry mesic moisture regime which includes PMV, AVVib, AVde, AQVib, AA, TMC, and ATM. When Red Maple is found on richer sites than these, such as ATM and AViO, it should be managed as a compositional component of the northern hardwood cover type.

Silvical Characteristics

<u>Species</u>	<u>Red Maple</u>
Flowers	Red Maple tends to be dioecious and flowers in early spring.
Fruit Ripens	Seed ripens in late May through early June.
Seed Dispersal	Seed disperses in 1 to 2 weeks by wind dissemination.
Good Seed Years	Seed crops occur almost every year with bumper crops every 2 years or so.
Germination	Red Maple does not have stringent germination requirements. The seed can germinate with very little light given proper temperature and some moisture. Most germination occurs in early summer soon after dispersal. Dense canopies can delay germination to the second year.
Seed Viability	Seed viability is generally good.
Seedling Development	Seedling on wet sites form short taproots with well developed laterals. On dry sites, they develop deep penetrating taproots and shorter laterals. The taproot may reach a depth of 10 to 12 inches the first year. Seedlings tolerate saturated soil and rebound in growth quickly following up to 30 days of saturation. Seedlings under favorable conditions will grow up to one foot the first year and two feet or more annually thereafter.
Seed Bearing Age	Seed is borne at approximately 12 to 15 years of age, but seed production at age 4 has been observed.
Vegetation Reproduction	Red Maple stumps sprout vigorously. Best sprout height growth is from stumps of younger trees. Coppice regeneration works well for Red Maple but results in clumped stems. Sprouts are highly preferred by deer and sustain browsing.
Shade Tolerance	Red Maple is both a pioneer and sub-climax species that is more shade tolerant and longer lived than the usual early successional species such as Aspen and Paper Birch. It is a mid-tolerant species.
Longevity	Red Maple is a short to medium lived tree which seldom lives longer than 150 years. In mixed northern hardwood stands, Red Maple begins to relinquish the site to Sugar Maple and other tolerant species after approximately 80 years of age.

MANAGEMENT ALTERNATIVE

The management objective should be identified in relation to other land management objectives using the habitat type as the indicator of site potential. Possible management alternatives include maintaining the type or converting it to other species composition. Seldom will Red Maple occur in pure stands or be managed in pure stands. Companion mixtures with White Pine, Paper Birch, or Oak (sp) will be compatible and generally desired as management objectives.

SILVICULTURAL SYSTEM

Even-aged management is the preferred silvicultural system to maintain Red Maple. Lower quality sites can be rotated and regenerated via coppice with fiber as the product objective. Higher quality sites should be managed with a sawlog objective by either shelterwood or group selection regeneration techniques. The group selection technique can be used to maintain patches of Red Maple. The group selection technique can be used to maintain patches of Red Maple and other semi-tolerant species within all aged stands.

MANAGEMENT RECOMMENDATIONS*

A. Seedling/Sapling Stands (0-5" DBH)

Stands with Red Maple sawlog potential occur on PMV, AQVib, ATM, AVVib, AVde, AA and TMC habitat types. Saplings on these types should be released to encourage accelerated diameter growth. Sapling density should be held high (85% to 90%) crown cover) to minimize setting forks to lower bole. Saplings on less rich habitat types won't warrant release.

B. Pole Timber Stands (5-11" DBH)

Manage PMV, ATM, AQVib, AVVib, AVde, AA and TMC types at the 90 percent crown cover level on the stocking chart for sawlog potential. Manage less rich habitat types at the 80 percent crown cover level for fiber potential. The poorer habitat sites consisting of QAE, AQV and potentially PAm should be managed for a fiber objective by regenerating via even-aged methods to encourage coppice sprouts.

C. Sawtimber Stands (>11" DBH) [AQVib, ATM, AVVib, AVde and AA habitat types]

Rotate as indicated on Site Index Chart.

Stands on habitat types previously indicated to have Red Maple sawlog potential should be shelterwood thinned from below to 90 percent crown cover, releasing 60-75 crop trees per acre. Undesirable understory composition may require removal or control, prior to the shelterwood cut, if excessive competition is anticipated. Favor a variety of species mixture as a shelterwood seed source. Remove the overstory when approximately 4,000 desired seedlings reach 4 to 5 feet in height. Red Maple won't require scarification to establish seedlings but companion species such as Red Oak and White Pine may.

* These prescriptions relate only to the northern portion of Wisconsin currently described in the "Field Guide to Forest Habitat Types of Northern Wisconsin" (Red Book). Prescription for southern Wisconsin will be addressed when habitat type guidelines become available.

References

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- Kotar, John, J.A. Kovach, and C.T. Locey, 1988, Field Guide to Forest Habitat Types of Northern Wisconsin, University of Wisconsin-Madison and Wisconsin Department of Natural Resources, 217 PP.

Figure 51.1 Site index curves for Red Maple in northern Wisconsin and upper Michigan (Carmean et al., 1989)

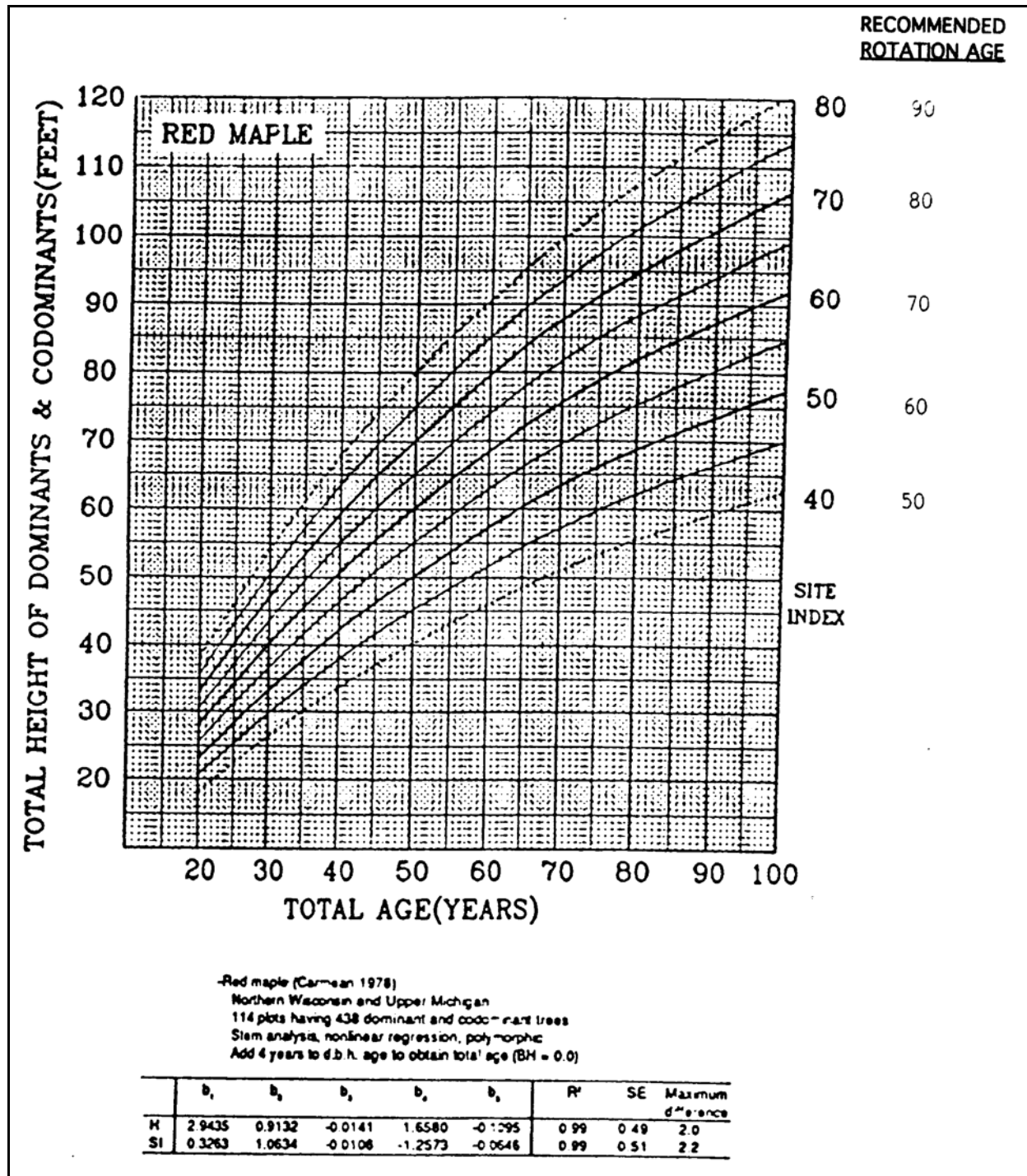


Figure 51.2 Stocking levels for Red Maple stands.

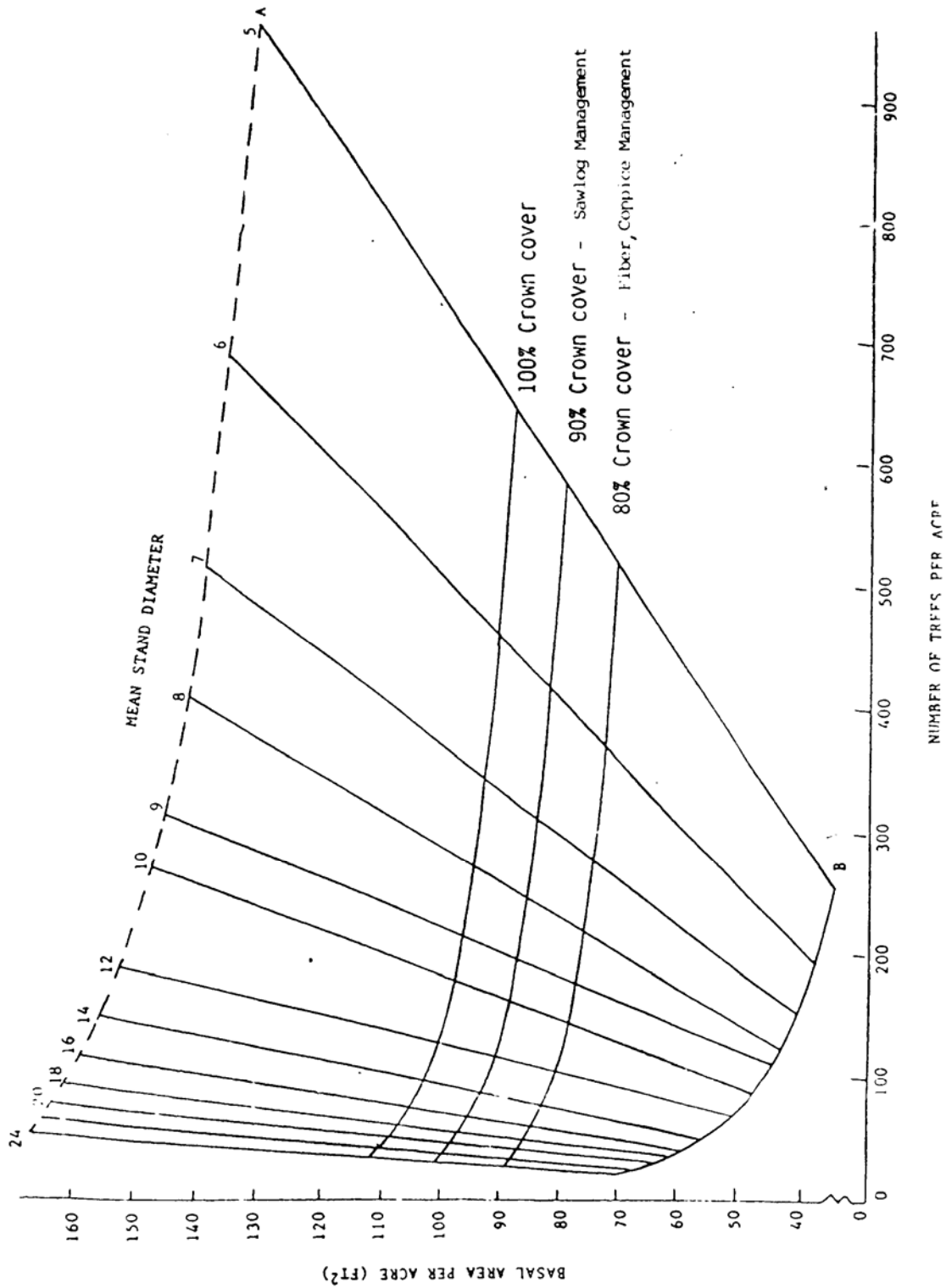


Figure 51.3 Even-age stocking levels for red maple stands by mean stand diameter, basal area, and number of trees per acre for specified crown covers after thinning.

Mean stand diameter ^a (In)	Crown area per tree ^b (Ft ²)	Basal area per tree ^c (Ft ²)	Crown cover (Percent of 43,560 ft ² /acre)					
			80 percent		90 percent		100 percent	
			Trees/Ac (No.)	BA/AC (Ft ²)	Trees/Ac (No.)	BA/AC (Ft ²)	Trees/Ac (No.)	BA/AC (Ft ²)
5	68	0.1364	512	69.9	577	78.6	641	87.4
6	95	0.1963	367	72.0	413	81.0	459	90.0
7	126	0.2673	277	73.9	311	83.2	346	92.4
8	161	0.3491	216	75.6	244	85.0	271	94.4
9	200	0.4418	174	77.0	196	86.6	218	96.2
10	243	0.5454	143	78.2	161	88.0	179	97.8
11	290	0.6600	120	79.3	135	89.2	150	99.1
12	340	0.7854	102	80.5	115	90.6	128	100.6
13	394	0.9218	88	81.5	100	91.7	111	101.9
14	452	1.0690	77	82.4	87	92.7	96	103.0
15	513	1.2272	68	83.4	76	93.8	85	104.2
16	578	1.3963	60	84.2	68	94.7	75	105.2
17	646	1.5763	54	85.0	61	95.7	67	106.3
18	718	1.7671	49	85.8	55	96.5	61	107.2
19	793	1.9689	44	86.5	49	97.3	55	108.2
20	872	2.1817	40	87.2	45	98.1	50	109.0
21	954	2.4053	36	87.9	41	98.8	46	109.8
22	1,039	2.6398	34	88.5	38	99.6	42	110.7
23	1,128	2.8852	31	89.1	35	100.3	39	111.4
24	1,220	3.1416	29	89.7	32	101.0	36	112.2

^a For tree of average basal area

^b Dominant and codominant high-quality forest grown red maple trees (Crown area = $3.478 \text{ DBH}^{1.844}$)

^c BA/tree = $D^2 \times 0.00545415$